



TROPICAL WINDS

The official newsletter of NWS Miami

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Welcome to the 2014 winter edition of National Weather Service (NWS) Miami's Tropical Winds newsletter. In this issue we present summaries of the 2014 Rainy and Atlantic Hurricane Seasons and outlook of the upcoming winter months. We also take a look at our academic partnerships with Florida International University (FIU) and The University of Miami (UM). To wrap up, we introduce the new NWS Weather-Ready Nation Ambassadors program.



Looking Back at the Rainy Season

May – October 2014

By: David Ross

With the summertime regime of daily thunderstorms now behind us, here's a quick recap of the 2014 wet season across South Florida.

Rainfall highlights this past wet season . . .

Wettest month: July

Average for South Florida – 9.45 inches

Driest month: October

Average for South Florida – 3.26 inches

Highest monthly rainfall: 19.69 inches

NWS Miami, July

Lowest monthly rainfall: 0.57 inches

Oasis Ranger Station, October

May was close behind October for the driest month, when South Florida rainfall averaged 3.67 inches. These two months are typically the drier ones, as they are transition months into and out of the wet season. Of course, October can go out with a bang on occasion as it can still be an active month for tropical systems.

Significant monthly rainfall stats . . .

Naples – 3rd wettest August, 13.89 inches

Wettest August: 1962, 14.60 inches

Miami – 10th wettest July, 10.29 inches

Wettest July: 1941, 15.33 inches

Across South Florida airport/cooperative observation sites, the wettest 1-day reading was 6.73 inches at the Naples Municipal Airport on August 4th! A CoCoRaHS (www.cocorahs.org) site west-northwest of Naples airport also recorded 7.00 inches between the morning of August 4th and 5th.

These impressive measurements were from a band of heavy rainfall that set up from the Gulf of Mexico across the Naples area, associated with low pressure over northern Florida. Rainfall amounts of 5-7 inches were measured in Naples and Golden Gate, most of this falling in a 2-3 hour time span. This lead to severe street flooding in these areas,

with many vehicles stranded and water entering a few structures. In addition to flooding, lightning posed a dangerous threat during this period. A total of 8 people were reported to be injured by lightning strikes, along with several homes suffering damage from lightning-sparked fires.

The average rainfall values for all South Florida NWS observation sites, with the maximum and minimum monthly rainfall totals (*figure 1*) and the observed rainfall totals, departure/difference from normal, and the percent of normal at select sites (*figures 2 and 3*) can be found below.

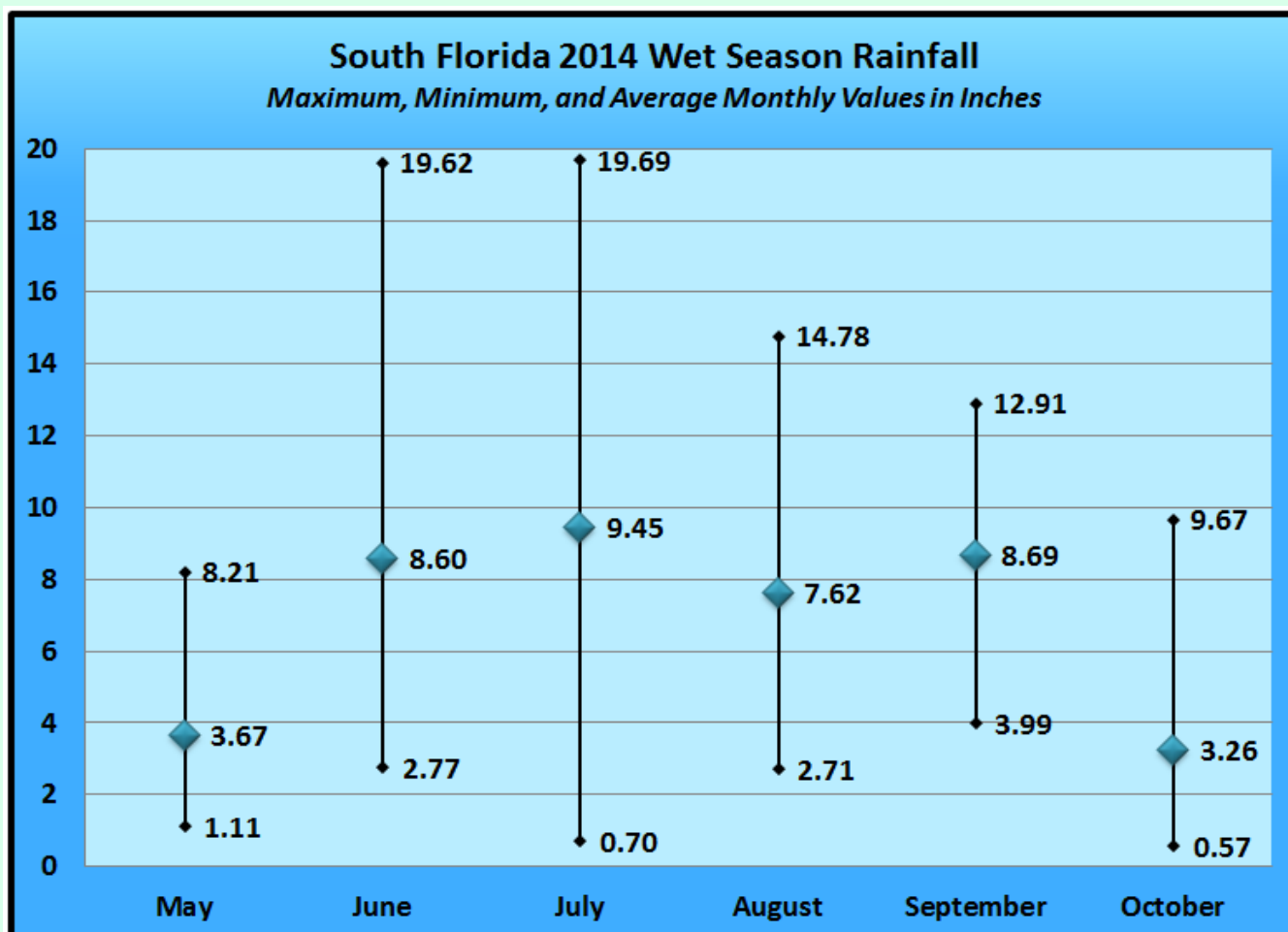


Figure 1 – Monthly average rainfall for South Florida airport/cooperative observation locations and maximum/minimum monthly rainfall totals.

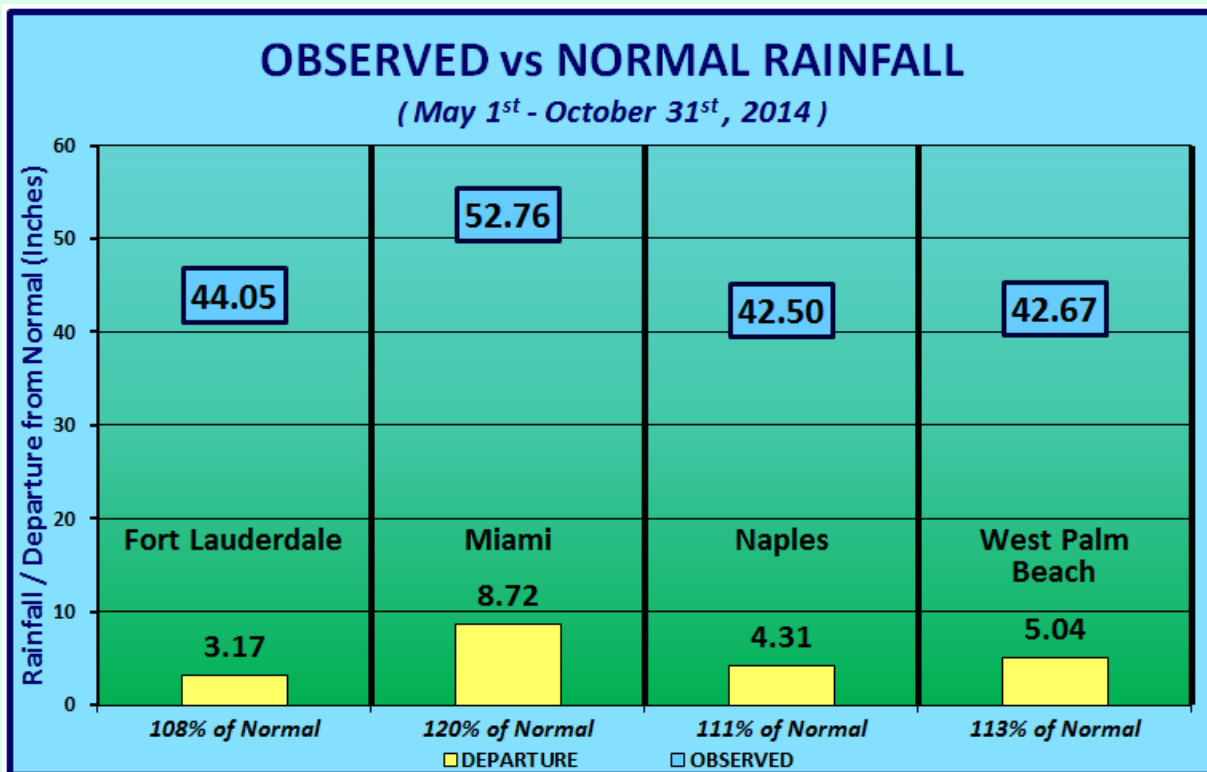


Figure 2 - Observed versus departure from normal rainfall for South Florida climate locations.

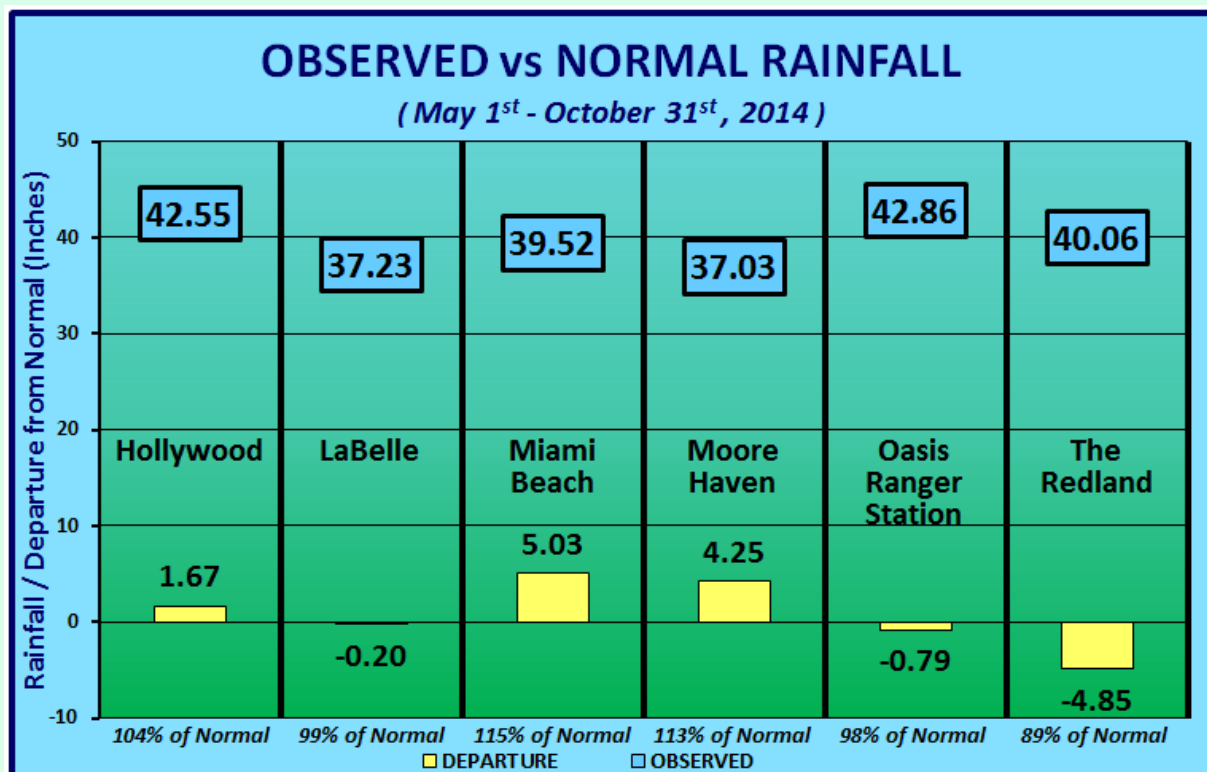


Figure 3 - Observed versus departure from normal rainfall for select South Florida COOP sites.

Average monthly temperatures (*table 1*), at South Florida's four main climate sites, ranged from 1.2 degrees Fahrenheit below normal (Fort Lauderdale & Miami, June) to 1.3 degrees above normal (Naples, May). May and August were above normal across the board, while June and October were below normal across the board. July and September saw sites above, below, and at normal temperatures.

Six-month averages were generally on the warmer side, ranging from 0.1 degrees below normal (Miami, the only site below normal) to 0.4 degrees above normal (Fort Lauderdale & West Palm Beach).

Temperature highlights for the 2014 May through October period. . .

Fort Lauderdale: 5th warmest

Warmest on record was 2008, 83.0°F

Highest reading: 96°F; 7/29

Lowest reading: 67°F; 5/17, 10/27, 10/31

Miami: Not in top 10 warmest/coolest

Warmest on record was 2010, 83.5°F

Highest reading: 95°F; 7/18, 7/28

Lowest reading: 67°F; 10/18, 10/27, 10/31

Naples: Not in top 10 warmest

Warmest on record was 2007, 82.8°F

Highest reading: 95°F; 6/26, 8/30, 8/31

Lowest reading: 61°F; 5/5, 10/27

West Palm Beach: Not in top 10 warmest

Warmest on record was 2010, 82.8°F

Highest reading: 95°F; 7/3

Lowest reading: 63°F; 5/17, 10/17, 10/27, 10/31

Average Monthly Temperature & Departure from Normal (°F)								
(May 1 – October 31, 2014)								
	Fort Lauderdale		Miami		Naples		West Palm Beach	
	Avg.	Dep.	Avg.	Dep.	Avg.	Dep.	Avg.	Dep.
May '14	80.4	0.2	80.6	0.7	79.5	1.3	79.6	1.2
Jun. '14	81.9	-1.2	81.5	-1.2	81.6	-0.3	81.1	-0.3
Jul. '14	84.6	0.3	83.9	-0.2	83.1	0	82.9	0.2
Aug. '14	85.6	1	84.9	0.7	84.2	1	84.2	1.2
Sep. '14	83.3	0.1	82.5	-0.4	82	-0.4	81.8	0
Oct. '14	80.3	-0.3	79.8	-0.1	78.4	-0.1	78.2	-0.1
6-Month	82.7	0.4	82.2	-0.1	81.5	0.3	81.3	0.4

Table 1 - Monthly and 6-month average temperature and departure from normal at the Fort Lauderdale/Hollywood, Miami, Naples, and Palm Beach Airports.

DECEMBER THROUGH FEBRUARY OUTLOOK

The 3-month forecast from the NWS' Climate Prediction Center (CPC) depicts *(figure 4)* below average temperature and above average precipitation across the southeast United States, including South Florida. Additional information can be found on the [CPC website](#).

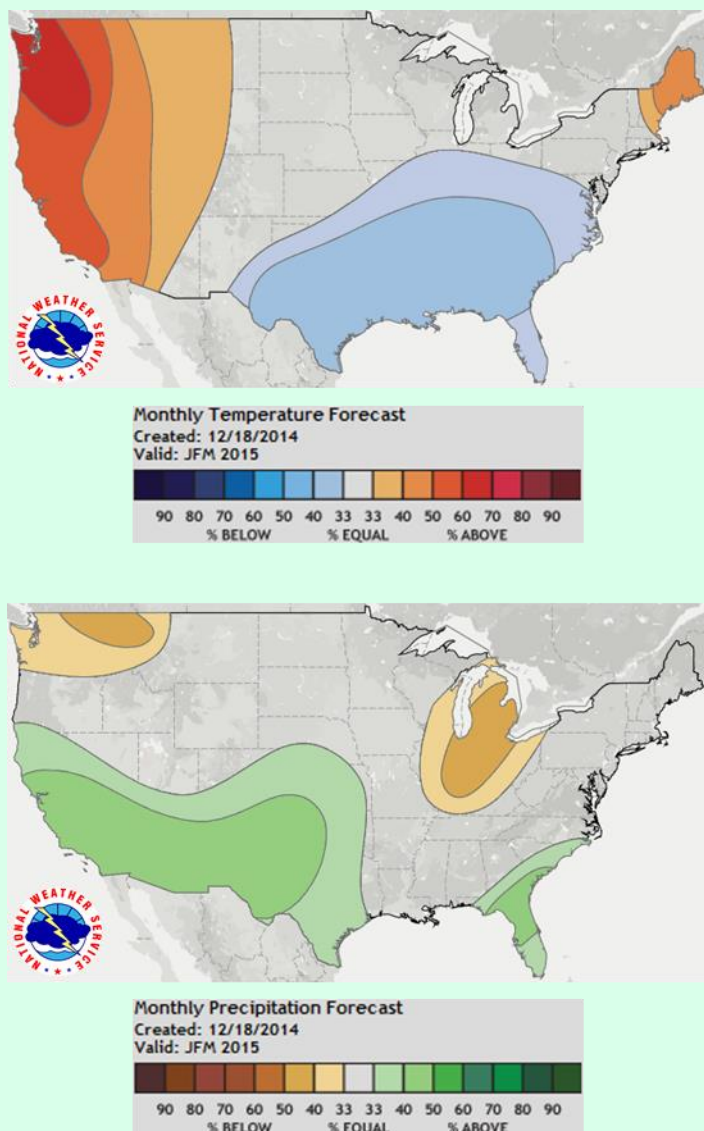


Figure 4 – CPC's forecast for January-February-March temperature (top) and rainfall.

2014 HURRICANE SEASON

By: Dan Gregoria

The 2014 Atlantic Hurricane Season saw below average activity overall. Here is a summary *(table 2)* of the season compared to the 30-year averages (1981-2010):

	30-Year Average (1981-2010)	2014
Tropical Storms	12	8
Hurricanes	6	6
Major Hurricanes	3	2

Table 2 – Number of tropical storms, hurricanes, and major hurricanes; 30-year average versus the 2014 Atlantic Hurricane Season.

The closest tropical system to South Florida was the first storm of the year... Arthur. Tropical Depression #1 developed off the east central Florida coast on June 30th, becoming Tropical Storm Arthur on July 1st. Tropical storm force winds affected the Atlantic waters off the east central Florida coast before Arthur moved northeast developing into a hurricane on July 3rd making landfall on the North Carolina coast before accelerating northeast and out to sea. This would be the closest storm of the year to South Florida as the rest of the tropical storms and hurricanes remained well out in the Atlantic or near Mexico.

Below (figure 5) is a summary of the tracks of the tropical storms and hurricanes during the 2014 season:

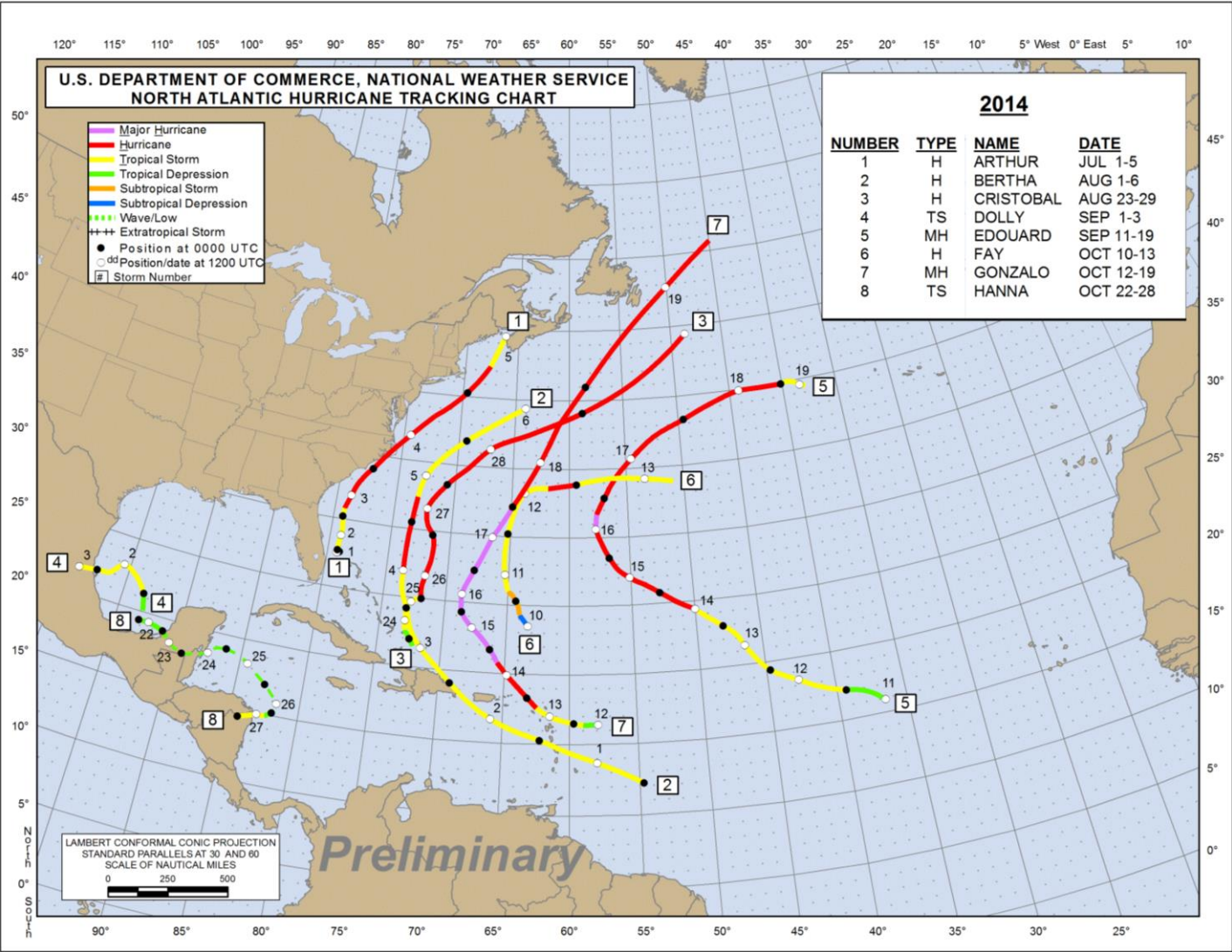


Figure 5 – Storm tracks of the 2014 Atlantic Hurricane Season.



By: Jera! Estupi!an

NWS Miami currently has several research collaboration projects with the University of Miami (UM) and Florida International University (FIU) atmospheric science programs.

The goal is to give students the opportunity to enrich their academic training and development by giving them the chance to interact with operational forecasters while working on research projects of interest to the NWS with application to real time forecasting and warning challenges. The graduate and undergraduate students who participate in this program get academic credit for working on a research project of interest to the NWS.

Some projects completed recently are:

- Using atmospheric freezing level to predict severe hail in NWS Miami's County Warning Area (CWA). This project has led to an improvement in the severe weather verification statistics.
- An examination of the National Hurricane Center Hurricane Forecasts over Florida and the Gulf of Mexico. This has resulted in better situational awareness when forecasting the track of storms near Florida.
- Verification of 3-hr forecasts of Probability of Precipitation (PoP) for NWS Miami. This allows forecasters to become more aware of their biases when creating short term forecasts.
- A climatology of cold fronts and Saharan dust events observed since 2010 at NWS Miami has been developed, including characteristics of the vertical distribution of the Saharan dust for each event in conjunction with aerosol model performance. This allows forecasters to be fully aware of Saharan dust events and how they affect thunderstorms in the convective season. Operational use of the UM Lidar has been key to detect and monitor the Saharan dust events across South Florida.
- A Numerical Validation of a Coupled Probabilistic Rip Current Model and Nearshore Wave Prediction System for South Florida. This is part of a Nation-wide effort to improve rip current forecasts across the NWS using high resolution nearshore wave modeling. Rip currents are one of the main causes of weather related deaths in South Florida. Rip current forecasts from this forecast system can be accessed from here:

www.srh.noaa.gov/mfl/?n=beach



By: Robert Molléda

In early 2014, the NWS kicked off a new program called the [Weather-Ready Nation \(WRN\) Ambassador](#) initiative.

What is this initiative?

One of NWS' missions is to save life and property by providing critical environmental intelligence, including weather forecasts and warnings, to our partners and the general public. The National Oceanic and Atmospheric Administration (NOAA), NWS' parent agency, wants everyone across the country, from communities to businesses, and the public at large to be ready, responsive, and resilient to extreme weather, water, and climate events. NOAA cannot achieve success without the support and contributions from partners. NOAA recognizes that to build a weather-ready nation requires innovative collaborations with emergency managers, the weather enterprise, media, and other organizations such as businesses and all levels of government. WRN Ambassadors are formally recognized by NOAA as organizations committed to collaborating with NOAA, sharing preparedness messages in outreach to the public, and serving as examples themselves by implementing resiliency best practices.

Why become a WRN Ambassador?

WRN Ambassadors will serve as leaders in their community. They will inspire others to be better informed and prepared, thus helping to minimize, mitigate, or even avoid the impacts of natural disasters. WRN Ambassadors can encourage these changes in their community in a number of ways, including:

- Setting an example by becoming “weather-ready” yourself (e.g., making employee preparedness a priority and having a disaster plan);
- Promoting Weather-Ready Nation key messages in your outreach activities;
- Providing incentives to your constituents and stakeholders to become more resilient; and
- Sharing success stories with NOAA.

In short, the WRN Ambassadors initiative is about improving two-way communication between NOAA and our partners so that everyone in the community, from the individual to the family, schools and businesses, can have the tools and information necessary for greater preparedness, responsiveness and resilience to extreme weather events.

WRN Ambassadors are expected to maintain active dialog with NOAA (e.g., maintain current point-of-contact and contact information), use NOAA-generated information (such as preparedness messages), and identify opportunities for collaboration including research initiatives and outreach events.

Who can become a WRN Ambassador?

Any organization across all levels of government, businesses large and small, non-profit and non-governmental organizations, and academia can become WRN Ambassadors. In South Florida alone, we have almost 20 WRN Ambassador entities (*figure 6*) and there’s room for plenty more.

Who can I contact for more information?

Any organization that is interested in becoming a WRN Ambassador can submit the required information from our online application form here:

http://www.nws.noaa.gov/com/weatherready/amb_tou.html

To email the NOAA Weather-Ready Nation team directly: wrn.feedback@noaa.gov.

For additional local information on the WRN Ambassador program you can also email me at: Robert.Molleda@noaa.gov.

I look forward to working with you to help make South Florida as weather-ready and weather-resilient as possible!



Figure 6 – These are but a few of the almost 20 WRN Ambassadors in South Florida.

**THANKS FOR READING,
HAPPY HOLIDAYS!!**

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